

Response  
Serial No. 10/509,028  
Attorney Docket No. 042591

## REMARKS

### Allowable Claims

Applicants gratefully acknowledge that claim 3 is merely objected to as depending from a rejected base claim, but is otherwise allowable.

### Oath/Declaration

The declaration was objected to because the foreign priority to Japanese patent application 2002-087738 has not been allegedly claimed. The Examiner required a new oath or declaration in compliance with 37 CFR §1.67(a) identifying this application by application number and filing date.

First, the declaration *does* specifically claim priority to Japanese patent application. The declaration includes the country, filing date as well as the number of Japanese patent application 2002-087738 and the following statement:

**I hereby claim foreign priority benefits under Title 35 United States Code § 119(a)–(d) of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application for which priority is claimed.**

(Emphasis added). There was no reason to interpret that the claim to foreign priority in the international stage has been withdrawn without any specific statement to the effect in the declaration.

Second, claim for priority based on a prior foreign application is not required to be specifically claimed in the declaration. The MPEP states at 1893.03(c) as follows:

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**RIGHT OF PRIORITY UNDER 35 U.S.C. 119(a) and 365(b)**

Pursuant to 35 U.S.C. 365(b) a U.S. national stage application shall be entitled to a right of priority based on a prior foreign application or international application designating at least one country other than the United States in accordance with the conditions and requirements of 35 U.S.C. 119(a) and the treaty and the PCT regulations. See in particular PCT Article 8 and PCT Rules 4.10 and 26*bis*. To obtain priority in the U.S. national stage application to such applications, the priority must have been timely claimed in the international stage of the international application. See 37 CFR 1.55(a)(1)(ii). **If priority was properly claimed in the international stage of the international application, the claim for priority is acknowledged and the national stage application file is checked to see if the file contains a copy of the certified copy of the priority document submitted to the International Bureau.**

If the priority claim in the national stage application is to an application, the priority of which was not claimed in the international stage of the international application, the claim for priority must be denied for failing to meet the requirements of the Patent Cooperation Treaty, specifically PCT Rule 4.10.

For a comparison with 35 U.S.C. 119(a)-(d) priority claims in a national application filed under 35 U.S.C. 111(a), see MPEP § 1895.01.

(Emphasis added). Thus, the objection to the declaration is not appropriate and should be withdrawn.

**Rejections under 35 USC §112, Second Paragraph**

**Claims 4-6 were rejected under 35 USC §112, second paragraph, as being indefinite because independent claim 4 recites a method for producing a heat-resistant titanium alloy material according to “either one of the Ti alloy materials of claims 1, 2 or 3.**

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Accordingly, the claim 4 has been amended to overcome the rejection.

**Rejections under 35 USC §102(b)**

**Claims 1, 2 and 4-6 are rejected under 35 USC §102(b) as being anticipated by Japan Patent Application No. 05-156423. In so doing, the Examiner alleged:**

The Examiner notes that Japan '423 discloses the production of a composite diffusion coating, and it would be reasonable to expect that composite coating to possess several layers formed from the elements Ti, Al, and Cr whenever the treatment conditions (for example, diffusion temperatures) for Al and Cr overlap applicants' claimed treatment conditions. It is well settled that when a claimed product appears to be substantially the same as a prior art product, the burden is on the applicant to prove that the product of the prior art does not necessarily or inherently possess characteristics attributed to the claimed product.

However, claimed product does not appear to be substantially the same as a prior art product. In order for a prior art reference to anticipate a claim, a single reference must teach or suggest each and every element as set forth in the claim, either expressly or inherently described. *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

Because it is clear that Japan '423 does not disclose every element as set forth in the claims, the Examiner appears to rely on theory of inherency. The MPEP 2112 explains about rejection based on inherency as follows:

#### IV. EXAMINER MUST PROVIDE RATIONALE OR EVIDENCE TENDING TO SHOW INHERENCY

The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic. *In re Rijckaert*, 9 F.3d 1531, 1534, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993) (reversed rejection because inherency was based on what would result due to optimization of conditions, not what was necessarily present in the prior art); *In re Oelrich*, 666 F.2d 578, 581-82, 212 USPQ 323, 326 (CCPA 1981). "To establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. **Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.**' " *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999) . . . .

"In relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art." *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990) (. . . **The Board reversed on the basis that the examiner did not provide objective evidence or cogent technical reasoning to support the conclusion of inherency.**).

(Emphasis added).

In view of these requirements, there is no reason that claims 1, 2 and 4-6 are anticipated by Japan '423.

Claim 1 recites, among other things, "said surface layer having a multilayer structure which includes an inner layer and an outer layer, **said inner layer having three coexistent phases consisting of a  $\beta$  phase, a  $\gamma$  phase and a Laves phase** in the phase diagram of a Ti-Al-Cr based alloy, **said outer layer being made of an Al-Ti-Cr based alloy having an Al concentration of 50 atomic % or more**" (emphasis added).

Japan '423 discloses the Al-Cr composite diffusion coating treatment of a Ti alloy. According to Japan '423, the Al-Cr composite diffusion coating treating agent for the Ti alloy includes 10 to 30% aluminum powder, 10 to 30% chromium powder, 0.5 to 5% ammonium chloride and the balance the sintering-preventive powder. The Ti alloy is embedded into this treating agent and is heated at 1000 to 1300°C. Thus, the Al-Cr diffusion coating layer is formed on the surface of the Ti alloy.

The last sentence in paragraph [0011] reads: "In Al-Cr diffused coating, due to decrease of activity because added Cr in the treatment agent, Al deposition onto Ti alloy surface. By further heating treatment, diffusion rate of Al into Ti alloy is increased, a coating of  $TiAl_2$  containing Cr or dual phase coating with surface layer of  $TiAl_3$  and inner layer of  $TiAl_2$ ."

However, it is clear for a person of ordinary skill in the art that the diffusion coating of Japan '423 does not have the "inner layer having three coexistent phases consisting of a  $\beta$  phase, a  $\gamma$  phase and a Laves phase in the phase diagram of a Ti-Al-Cr based alloy" because, as shown in Table 1 in Japan '423, the coating contains less than 10% of Cr and because chromium is not diffused in  $\beta$  phase area.

Therefore, Japan '423 does not teach or suggest "a surface layer formed on the surface of said base, said surface layer having a multilayer structure which includes an inner layer and an outer layer, said inner layer having three coexistent phases consisting of a  $\beta$  phase, a  $\gamma$  phase and a Laves phase in the phase diagram of a Ti-Al-Cr based alloy, said outer layer being made of an Al-Ti-Cr based alloy having an Al concentration of 50 atomic % or more"

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For at least these reasons, claim 1 patentably distinguishes over Japan '423. Claim 2, depending from claim 1, also patentably distinguishes over Japan '423 for at least the same reasons.

Claim 4 is directed to a method and it specifically recites the following steps: (1) "subjecting a substrate made of a heat-resistant Ti alloy to a Cr diffusion treatment to diffuse chromium into said substrate at a temperature within a  $\beta$  single-phase region in the phase diagram of a Ti-Al-Cr based alloy;" (2) precipitating a  $\gamma$  phase and a Laves phase from the  $\beta$  phase during a cooling process to form the inner layer with three coexistent phases consisting of the  $\beta$ ,  $\gamma$  and Laves phases;" and (3) then subjecting said obtained product to an Al diffusion treatment to diffuse aluminum into said product so as to form the outer layer of an Al-Ti-Cr based alloy having an Al concentration of 50 atomic % or more."

What is disclosed in Japan '423 is that the Ti alloy is embedded into this treating agent including Al powder, Cr powder, ammonium chloride and the balance the sintering-preventive powder, and that it is heated at 1000 to 1300°C to form the Al-Cr diffusion coating layer on the surface of the Ti alloy. Japan '423 does not teach or suggest any of the steps recited in claim 4.

For at least these reasons, claim 4 patentably distinguishes over Japan '423. Claims 5 and 6, depending from claim 4, also patentably distinguish over Japan '423 for at least the same reasons.

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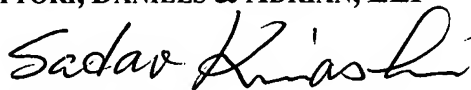
In view of the aforementioned amendments and accompanying remarks, Applicants submit that the claims, as herein amended, are in condition for allowance. Applicants request such action at an early date.

If the Examiner believes that this application is not now in condition for allowance, the Examiner is requested to contact Applicants' undersigned attorney to arrange for an interview to expedite the disposition of this case.

If this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,

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